

normal; the greatest monthly amount, 8.47, occurred at Eau Claire, and the least, 1.08, at Lincoln.—*W. M. Wilson.*

Wyoming.—The mean temperature was 47.8°, or 2.8 below normal; the highest was 87°, at Basin on the 11th and 18th, and the lowest, 10°, at Dome Lake on the 2d and at Burns on the 3d. The average precipitation was 1.83 or 0.20 below normal; the greatest monthly amount, 4.74, occurred at Sheridan, and the least, 0.05, at Wamsutter.—*W. S. Paumer.*

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SPECIAL CONTRIBUTIONS.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Symons Meteorological Journal. London. Vol. 34.
 —Ozone. P. 50.
 Cross, Robert. Whirlwind at Worstead, Norfolk, March 20, 1899. P. 51.
Journal de Physique. Paris. 3me Série. Tome 8.
 Pellat, H. Perte d'électricité par évaporation de l'eau électrisée. Vapeur émise par un liquide non-électrisé. Application à l'électricité atmosphérique. Influence des fumées. P. 253.
Comptes Rendus. Paris. Tome 128.
 Bonnier, G. Caractères anatomiques et physiologiques des plantes rendues artificiellement par l'alternance des températures extrêmes. P. 1143.
 Le Cadet, G. Sur l'ascension du *Balashoff* exécutée le 24 Mars, 1899. P. 1192.
Zeitschrift für Luftschiffahrt u. Phys. d. Atm. Berlin. 18 Jahrg.
 Dientsbach, K. A. M. Herring's neue Flugversuche. P. 73.
Meteorologische Zeitschrift. Wien. Band 16.
 Bergholz, P. Die Taifune vom 9 und 29 September, 1897. P. 145.
 Edvi, E. I. v. Die Lage der Isotherme von 0° C. P. 157.
 Schwab, Fr. Beobachtung eines Halo-Phänomenes. P. 164.
 Schamberger, H. Sonnenringe. P. 165.
 Meinardus, W. Der Eisregenfall vom 20 Oktober, 1898, über Mittel- und Ostdeutschland. P. 165.
 —Beschädigung der Telegraphen- und Fernsprechanlagen im Kreise Waldenburg durch Eisbelastung und Baumbruch. P. 171.
 Supan, A. Die jährlichen Niederschlagsmengen auf den Meeren. P. 173.
 —Klima von Galveston, Tex. P. 173.
 Hiratsuka, O. Harmonische Analyse der täglichen Variation der Deklination zu Tokio. P. 178.
 Nippoldt, A., Jr. Bemerkung zu vorliegender Arbeit. P. 179.
 Mazelle, E. Berichtigung zu SW.-Sturm in Triest. P. 180.
Scientific American. New York. Vol. 80.
 Dexter, E. G. Crime and the Weather. P. 19592.
L'Aerophile. Paris. 7 année.
 Minniot, W. Les ballons-sondes de M. Teisserence de Bort. P. 38.
 Hermite, G. Le lancer de l' "Aerophile" No. 3, 24 Mars, 1899. P. 38.
 Besancon, G. L'ascension du "Balaschoff," 24 Mars, 1899. P. 41.
 Le Cadet, G. Sur l'ascension du "Balaschoff," 24 Mars, 1899. P. 42.
Astrophysical Journal. Chicago. Vol. 9.
 Angstrom, K. Absolute Determination of the Radiation of Heat with the Electric Compensation Pyrheliometer. P. 332.
Das Wetter. Berlin. 16 Jahrg.
 Sprung, A. Auffällige Strahlungstemperaturen. P. 83.
 Clayton, H. H. Studien über cyclonale und anticyklonale Erscheinungen vermittelst Drachen am Blue Hill Observatory. P. 85 and 114.
 Fajdiga, I. Die atmosphärische Electricität und der Blitzableiter. P. 45, 69, 92, 116.
Geographical Journal. London. Vol. 13. 1899.
 Cornish, V. Kumatology (Study of waves and wave structure of the atmosphere, hydrosphere, and lithosphere). P. 624.
Petermann's Mittheilungen. Gotha. Band 45.
 Friederiosen, M. Meteorologische Beobachtungen in Lukschun, Zentralasien. P. 125.
Scottish Geographical Magazine. Edinburgh. Vol. 15.
 Dingelstedt, V. Hydrography of the Caucasus. P. 281.

Nature. London. Vol. 60.
 —Height of the Aurora. P. 130.
Ciel et Terre. Bruxelles. Vol. 7.
 —Sur le phénomène de l'apparition simultanée du fœhn des deux côtés des Alpes. P. 171.
Terrestrial Magnetism and Atmospheric Electricity. Baltimore. Vol 4.
 Rucker, A. W. Secondary Magnetic Field of the Earth. P. 113.

OBSERVATIONS AT RIVAS, NICARAGUA.

The records contributed for many years by Dr. Earl Flint, at Rivas, Nicaragua, include barometric readings. His present station is at 11° 26' N., 85° 47' W. The observations at 7:17 a. m., local time, are simultaneous with Greenwich 1 p. m. The altitude of his barometer is 36 meters above sea level, but until the barometer has been compared with a standard it seems hardly necessary to publish the daily readings. The wind force is recorded on the Beaufort scale, 0-12. When cloudiness is less than 1/10, the letter "F," or "Few," is recorded.

This station is situated on the western shore of Lake Nicaragua, not far from the eastern end of the western division of the Nicaragua Canal. The volcano Ometepe, on an island in Lake Nicaragua, is about 10 miles northeast of the station. Mr. Flint's records occasionally mention the presence of clouds on the summit of this mountain.

Dr. Flint's reports to the Weather Bureau now embrace two distinct features, namely, the simultaneous morning observations and the daily climatological summary, as given in the two following tables for each month.

Simultaneous observations at 1 p. m. Greenwich (or 7:17 a. m. local) time, April, 1899.

Date.	Temperature.		Wind Direction.	Wind Force.	Upper clouds.			Lower clouds.		
	Air.	Dew-point.			Kind.	Amount.	Direction from.	Kind.	Amount.	Direction from.
1.	79	73	ne.	5	c.	10	sw.			
2.	77.5	71	ne.	4	ck.	9	sw.	f.	1	ne.
3.	78	71	ne.	3	ck.	3	sw.	f.	1	ne.
4.	78	71	ne.	5				f.	0.5	ne.
5.	78	71	ne.	6	c., cs.	10	sw.	f.		ne.
6.	78.5	71	ne.	4					Few	ne.
7.	78	70	ne.	4				f.	1	ne.
8.	78	69	ne.	4				ks.	2	ne.
9.	78	70	ne.	6	ck.	10	sw.			ne.
10.	76	71	ne.	4				f.	10	ne.
11.	74.5	67	ne.	7				ks.	1	ne.
12.	76	70	ne.	5	cs., ks.	8	sw.	f.	1	ne.
13.	78	69	ne.	5				f.	2	ne.
14.	76.5	72	ne.	8				kn.	10	ne.
15.	77	70	ne.	3				k.	6	ne.
16.	78	71	ne.	2	os.	Few	sw.			ne.
17.	79	72	ne.	3				f.	5	ne.
18.	79.5	72	ne.	3				f.	4	ne.
19.	80	71	ne.	2				f.	5	ne.
20.	79	76	ne.	1	os.	1	sw.	f.	9	ne.
21.	81.5	77	ne.	1	ck.		sw.	f.	3	ne.
22.	80.5	73	ne.	5	ck.		sw.	f.	10	ne.
23.	79	72	ne.	6				f.	2	ne.
24.	80	72	ne.	6				f.	5	ne.
25.	80.5	73	ne.	5	os.	2		f.	1	ne.
26.	81	73	ne.	6				f.	1	ne.
27.	81	73	ne.	4				f.	1	ne.
28.	79	72	ne.	4				f.	1	ne.
29.	79.5	73	ne.	3	os.		se.	f.	1	ne.
30.	78	71	ne.	4				f.	Few	ne.
Sums.										
Means.	78.6									

* Cumuli on Ometepe.

Climatological observations for twenty-four hours ending at 7:17 a. m. local (or 1 p. m. Greenwich) time, April, 1899.

Date.	Temperature.		Wind.		Average cloudiness.	Total rainfall.
	Maximum.	Minimum.	Prevailing direction.	Maximum force.		
1.....	86	75	e.	5	10	0.85
2.....	87	75	ne.	6	8	0.00
3.....	87	75	ne.	6	7	0.00
4.....	87	75	ne.	5	5	0.00
5.....	88	76	ne.	7	4	0.00
6.....	88	76	ne.	6	4	0.00
7.....	88	75	ne.	6	4	0.00
8.....	88	75	ne.	6	0	0.00
9.....	88	77	ne.	2	2	0.00
10.....	87	76	ne.	6	6	0.00
11.....	88	76	ne.	7	7	0.00
12.....	89	74	ne.	3	3	0.00
13.....	88	74	ne.	7	7	0.00
14.....	88	76	ne.	3	3	0.00
15.....	88	76	ne.	5	6	T.
16.....	89	76	ne.	3	3	0.00
17.....	87	76	ne.	3	1	0.00
18.....	88	76	ne.	4	2	0.00
19.....	89	77	ne.	4	1	0.00
20.....	89	76	ne.	4	4	0.00
21.....	90	76	ne.	2	2	0.00
22.....	92	80	ne.	2	3	0.00
23.....	91	81	ne.	4	1	0.00
24.....	90	81	ne.	6	3	0.00
25.....	88	78	ne.	6	4	0.00
26.....	89	78	ne.	6	4	T.
27.....	89	78	ne.	6	1	0.00
28.....	90	78	ne.	6	1	0.00
29.....	90	77	ne.	2	1	0.00
30.....	88	77	ne.	2	1	0.00
Means.....	88.1	77.0				T. *

*The 0.65 on April 1, was counted in for March.

First half of month abnormal. No maximum and minimum thermometers here, but make frequent observations and infer the maximum and minimum temperatures therefrom.

Simultaneous observations at 1 p. m. Greenwich (or 7:17 a. m. local) time, May, 1899.

Date.	Temperature.		Wind.		Upper clouds.		Lower Clouds.			
	Alr.	Dew-point.	Direction.	Force.	Kind.	Amount.	Direction from.	Kind.	Amount.	Direction from.
1.....	79	70	ne.	4	ck.	6	sw.	1	ne.	
2.....	78	74	sw.	0	ok.	1	sw.	9	sw.	
3.....	77	73	sw.	0	ok.	10	sw.			
4.....	76.5	73	n.-w	0	cs.	Few	nw.			
5.....	78	75	s.	0				Few		?
6.....	77	74	sw.	1				10	ne.	
7.....	78	74	ne.	4				1	ne.	
8.....	79.5	72	ne.	3				3	ne.	
9.....	80.5	72	ne.	5				2	ne.	
10.....	79.5	70	ne.	5				Few	ne.	
11.....	80	73	ne.	4				5	ne.	
12.....	80.5	72	ne.	6	ck.	1	sw.	1	ne.	
13.....	80.5	72	ne.	4				1	ne.	
14.....	81	73	ne.	5				1	ne.	
15.....	80	73	ne.	5				Few	ne.	
16.....	80.2	72	ne.	5				1	ne.	
17.....	79	72	ne.	4	cs.	Few	sw.	Few	ne.	
18.....	81	72	ne.	5	cs.	Few	sw.	8	ne.	
19.....	81	74	ne.	4				8	ne.	
20.....	80	73	ne.	3	cs.	2	sw.	Few	ne.	
21.....	81.5	74	ne.	5	cs.	Few	sw.	Few	ne.	
22.....	82.5	75	ne.	5				1	ne.	
23.....	82	75	ne.	4				5	ne.	
24.....	81	77	ne.	1	cs., ck.	9	nw.	1	ne.	
25.....	81.5	77	ne.	1	cs.	2		8	ne.	
26.....	79	74	ne.	3				10	ne.	
27.....	78	74	ne.	4				9	ne.	
28.....	78	74	ne.	5				6	ne.	
29.....	77.5	71	ne.	4				8	ne.	
30.....	76	70	ne.	3				10	ne.	
31.....	78	70	ne.	5				10	ne.	
Sums.....										
Means.....	79.4									

Climatological observations for twenty-four hours ending at 7:17 a. m. local (or 1 p. m. Greenwich) time, May, 1899.

Date.	Temperature.		Wind.		Average cloudiness.	Total rainfall.
	Maximum.	Minimum.	Prevailing direction.	Maximum force.		
1.....	88.1	77	ne.	4	1	0.00
2.....	90	77.5	ne.	4	4	0.00
3.....	89.5	76	ne.	4	3	0.00
4.....	91	77	var.	4	4	0.00
5.....	91.2	74	nw.	3	3	0.00
6.....	92	76	nw.	6	6	0.50
7.....	88	76	ne.	5	5	0.00
8.....	87	77	ne.	5	5	0.00
9.....	88.2	77.5	ne.	1	1	0.00
10.....	88	78	ne.	2	2	0.00
11.....	88.2	78	ne.	2	2	0.00
12.....	89	78	ne.	3	3	0.00
13.....	87	78	ne.	3	3	0.00
14.....	90.6	78	ne.	3	3	0.00
15.....	91	78.8	ne.	1	1	0.00
16.....	90.4	78	ne.	0	0	0.00
17.....	90	78	ne.	0	0	0.00
18.....	90.1	77.5	ne.	4	4	0.00
19.....	90	79.5	ne.	5	5	0.00
20.....	87	77.5	ne.	5	5	0.00
21.....	90.1	77.5	ne.	2	2	0.00
22.....	88	79.5	ne-se.	1	1	0.00
23.....	88	80	ne.	1	1	0.00
24.....	88.2	80	ne.	1	1	0.00
25.....	88.3	80.5	ne.	2	2	0.00
26.....	87	81	ne.	2	2	0.58
27.....	88	78	ne.	7	7	T.
28.....	88	78.8	ne.	6	6	0.00
29.....	85	77	ne.	7	7	0.10
30.....	83	77	ne.	7	7	0.00
31.....	84	75.5	ne.	5	5	0.00
Means.....	88.8	78.4				1.58

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of the Central Meteorologico-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the *Boletin Mensual*. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for May, 1899.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
Culliacán Rosales (E. d. S.)	112	29.71	98.6	88.3	82.2	48			
Leon (Guanaajuato)	5,334	24.29	92.8	82.7	74.1	32	1.17	s.	e.
Linares (N. Leon)	1,188	28.59	100.4	88.0	84.6	61	0.79	s.	s.
Mexico (Obs. Cent.)	7,473	23.06	84.2	80.0	66.2	49	1.97	n.	ne.
Morelia (Seminario)	6,401	23.96	85.5	82.5	69.3	57	0.64		s.
Oaxaca	5,164	25.06	100.6	85.0	72.9	64	3.79	s.	e.
Puebla (Col. Cat.)	7,112	23.35	89.1	80.0	69.8	64	3.26	e.	ene.
Saltillo (Col. S. Juan)	5,399	24.74	97.7	80.4	75.9	55	1.26	sw.	n.
Silao	6,063	24.25	87.4	88.5	75.4	51	2.64	wnw.	ese.
Tuxpan	19	29.98	105.8	86.6	83.7	75			
Zapotlan (Seminario)	5,078	25.10	91.4	83.2	74.7	67	0.77	sse.	ne.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made nearly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.